Northpoint Technology – DBS Compatiblilty Test – Austin Test Area

TXDOT

Rx Site Data Log Rx Site No. 10 p1

Set: 1 1

Re: Rx Condx Ref. No. 2 Date / Time: 12/23/98 1:55 CST

Re: Tx Condx Ref. No. 2 Operator: MWH

Data Measurements:

(1) On arrival -- - Position and deploy antenna platform (first at ground level).
- Position GPS Receiver and allow to average during site occupation.
- Obtain information for Rx Site Location Log.
- Point Precision Horn Antenna toward Tx (approx. direction).

(2) DBS Signal Interference Tests – DirecTV and EchoStar.

For each satellite case (one at a time), with Tx OFF, point DBS Antenna to the satellite and peak the signal strength. Observe the monitor for the prescribed TV channel (w/ appropriate DBS Rx) and assess signal quality. Turn Tx ON and observe the TV signal quality. Note any change in signal quality that is correlated with the Tx ON/OFF condition. Repeat Tx ON/OFF sequence as needed.

With the Spectrum Analyzer (SA), observe and record the Signal Power Spectrum and its peak value at the LNB output for the two Tx states (ON/OFF). Label the Spectrum Plots and mark them with an assigned ID code.

DirecTV – Tx OFF: OK? Y___ / N ___ Tx ON: OK? Y X / N___

Any behavior correlated with Tx ON/OFF ? Y___ / N___

Comments: _____.

Signal Power Spectrum – Tx ON: --Peak -- -59.52dBm Plot ID Code 10-D.
Tx OFF: – Peak -- _____dBm Plot ID Code _____.
Comments: _____.

EchoStar – Tx OFF: OK? Y___ / N ___ Tx ON: OK? Y X / N___

Any behavior correlated with Tx ON/OFF ? Y___ / N___

Comments: _____.

Signal Power Spectrum – Tx ON: --Peak -- -59.29dBm Plot ID Code 10-E.
Tx OFF: – Peak -- _____dBm Plot ID Code _____.
Comments: _____.

Rx Site Data Log

Rx Site No. 10 p2
Set: 1 1

(3) Northpoint Signal Quality Test –

With the Tx ON, point the DBS antenna toward the Tx , while using the NP Rx equipment, and peak the signal strength. Observe the monitor (w/ NP Rx equipment) and assess the signal quality.

NP Signal – OK? Y X / N___ Comments: _____.

(4) NP Rx Signal Level and Power Spectrum at Rx Site – LNB output --

With the DBS antenna on the NP Tx, and with the Tx ON, observe and record the Signal Power Spectrum and the peak level at the LNB output. Label the spectrum plot with an assigned ID Code.

Signal Power Spectrum -- Peak -- -61.27 dBm Plot ID Code -- 10-N.

Comments: _____.

N/A

(5) Tx Signal Level and Power Spectrum at Rx Site – w/ Precision Ant. and SA.

Using the Precision Antenna and Test Set, observe and record the Tx Signal Power Spectrum and the peak value at the Rx site. Label the spectrum plot with an assigned ID Code.

Signal Power Spectrum -- Peak -- _____ dBm Plot ID Code -- _____.

Comments: _____.

(6) When Rx Site measurements and tests are completed, read the GPS Receiver and record the position in the Rx Site Location Log. Prepare the equipment for movement to the next site.

Use the space below for added comments and notes. Attach extra pages if necessary.

Northpoint Technology – DBS Compatibility Test – Austin Test Area
Signal Strength Readings

Rx Site Data Log **Rx Site No.** 10

Set 1 1

Re: Condx Ref. No. 2 Date / Time 12/23/98 1:40 CST

Re: Condx Ref. No. 2 Operator: MWH/ME

Direct T.V. Signal Strength Readings

Tsp No	Signal Strength Readings										Avg
16	80	79	79	81	81	80	80	80	79	80	80.0
18	79	77	77	78	78	79	79	79	79	78	78.3
20	82	82	81	81	80	80	81	82	81	82	81.2

Estar T.V. Signal Strength Readings

Tsp No	Signal Strength Readings										Avg
16	85	85	85	85	84	84	84	85	85	85	84.7
18	84	83	84	83	84	84	83	83	84	84	83.6
20	86	87	86	86	86	86	86	85	86	85	85.9

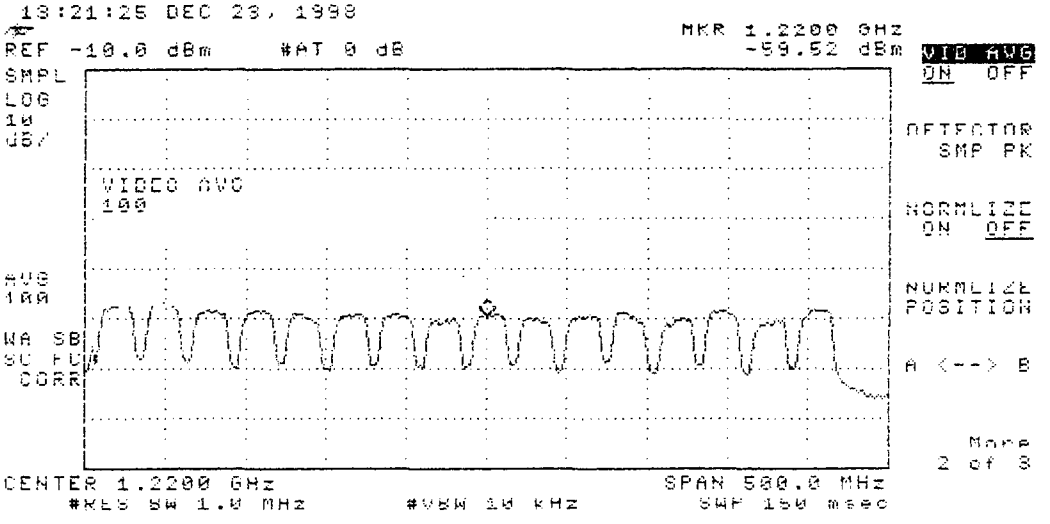
Notes: Overcast, Drizzling, Cold 30°-35°, Windy.
1. Shield from Reflection, No change in Pionter on DTV, + Estar

1. DTV, Site-10, Set-1, 12/23/98

2. Boom Down

3. HP-8591E

Plot-10-D

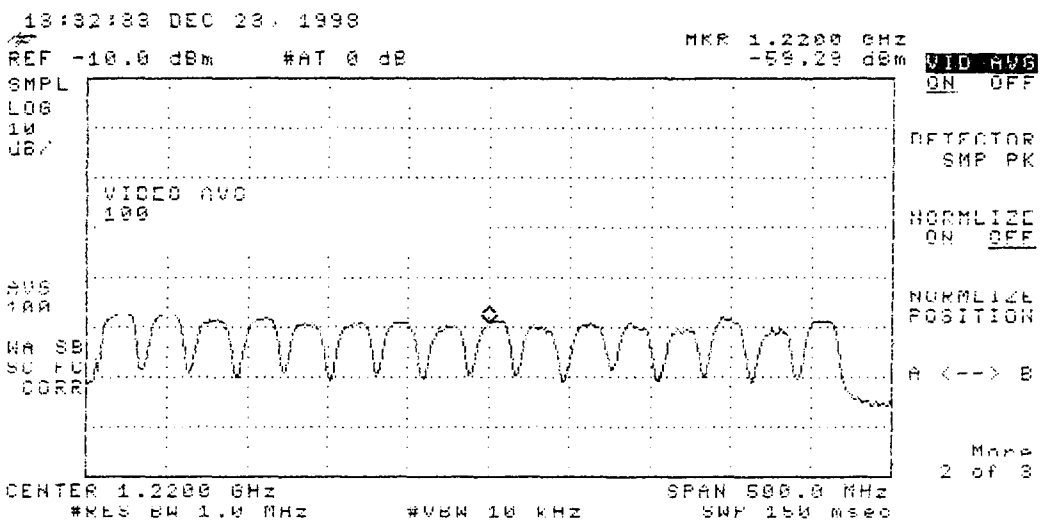


1. Estar, Site-10, Set-i, 12/23/98

2. Boom Down

3. HP-8591E

Plot 10-E



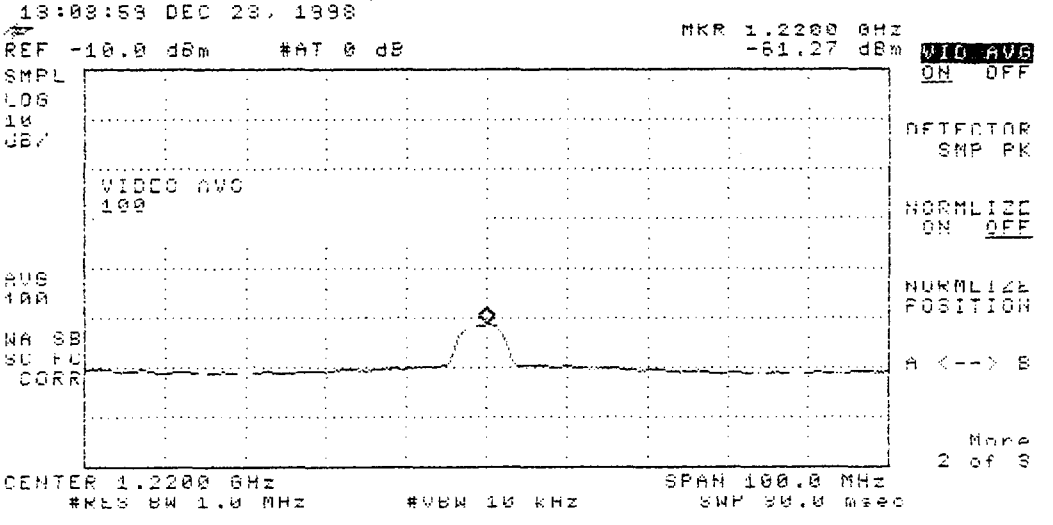
1. Site-10, Set-1, 12/23/98

2. Pointing through several Tree's which are wet and ice on them. At N.P. Tx. (Around 6-8 Tree's).

3. Boom Down

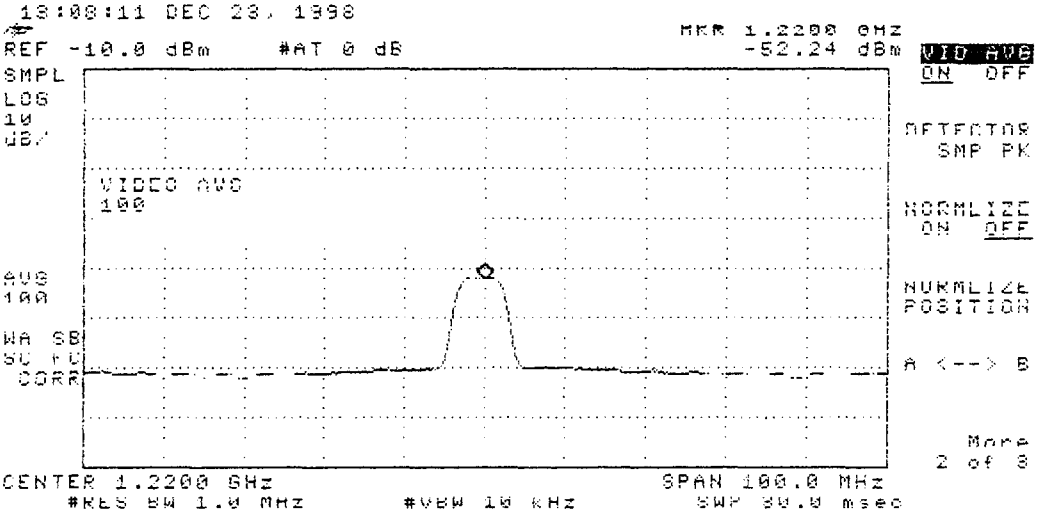
4. Picture Good on T.V.

Plot-10-N



1. Site-10, Set-1, 12/23/98
2. Reflection off of Tx Dot through 1 tree.
3. Doom Down
4. HP8591E
5. Picture Good on T.V.

Plot 10-R-A



COMMENTS FROM SITE 10

Site 10 TXDOT

a. Shield from reflection, no change in pointer on DTV and Estar
b. NP signal, pointing through several tree's which are wet and have ice on them (Around 6-8 trees)
c. Have one reflection plot
    1. Reflection off of TXDOT building through one tree.

Northpoint Technology – DBS Compatiblilty Test – Austin Test Area

Rx Site Data Log

3rd + Jewell

Rx Site No. 11 p1

Set: 11

Re: Rx Condx Ref. No. 2 Date / Time: 12/28/98 10:20 CST

Re: Tx Condx Ref. No. 2 Operator: SMW

Data Measurements:

(1) On arrival -- - Position and deploy antenna platform (first at ground level).
- Position GPS Receiver and allow to average during site occupation.
- Obtain information for Rx Site Location Log.
- Point Precision Horn Antenna toward Tx (approx. direction).

(2) DBS Signal Interference Tests – DirecTV and EchoStar.

For each satellite case (one at a time), with Tx OFF, point DBS Antenna to the satellite and peak the signal strength. Observe the monitor for the prescribed TV channel (w/ appropriate DBS Rx) and assess signal quality. Turn Tx ON and observe the TV signal quality. Note any change in signal quality that is correlated with the Tx ON/OFF condition. Repeat Tx ON/OFF sequence as needed.

With the Spectrum Analyzer (SA), observe and record the Signal Power Spectrum and its peak value at the LNB output for the two Tx states (ON/OFF). Label the Spectrum Plots and mark them with an assigned ID code.

DirecTV – Tx OFF: OK? Y___ / N ___ Tx ON: OK? Y X / N___

Any behavior correlated with Tx ON/OFF ? Y___ / N___

Comments: _____.

Signal Power Spectrum – Tx ON: --Peak -- -60.44 dBm Plot ID Code 11-D.
Tx OFF: – Peak -- _____dBm Plot ID Code _____.
Comments: _____.

EchoStar – Tx OFF: OK? Y___ / N ___ Tx ON: OK? Y X / N___

Any behavior correlated with Tx ON/OFF ? Y___ / N___

Comments: _____.

Signal Power Spectrum – Tx ON: --Peak -- -59.12 dBm Plot ID Code 11-E.
Tx OFF: – Peak -- _____dBm Plot ID Code _____.
Comments: _____.

Rx Site Data Log

Rx Site No. 11 p2
Set: 1 1

(3) Northpoint Signal Quality Test –

With the Tx ON, point the DBS antenna toward the Tx , while using the NP Rx equipment, and peak the signal strength. Observe the monitor (w/ NP Rx equipment) and assess the signal quality.

NP Signal – OK? Y X / N___ Comments: _____.

(4) NP Rx Signal Level and Power Spectrum at Rx Site – LNB output --

With the DBS antenna on the NP Tx, and with the Tx ON, observe and record the Signal Power Spectrum and the peak level at the LNB output. Label the spectrum plot with an assigned ID Code.

Signal Power Spectrum -- Peak --53.76dBm Plot ID Code -- 11-N.

Comments: _____.

(5) Tx Signal Level and Power Spectrum at Rx Site – w/ Precision Ant. and SA.

Using the Precision Antenna and Test Set, observe and record the Tx Signal Power Spectrum and the peak value at the Rx site. Label the spectrum plot with an assigned ID Code.

Signal Power Spectrum -- Peak -- _____ dBm Plot ID Code -- _____.

Comments: _____.

(6) When Rx Site measurements and tests are completed, read the GPS Receiver and record the position in the Rx Site Location Log. Prepare the equipment for movement to the next site.

Use the space below for added comments and notes. Attach extra pages if necessary.

1. N.P. Tx Hiden By Tree, Oak

Northpoint Technology – DBS Compatibility Test – Austin Test Area
Signal Strength Readings

Rx Site Data Log 312 d Jewell **Rx Site No.** 11

Set 1-1

Re: Condx Ref. No. 2 Date / Time 12/28/98 __:__ CST

Re: Condx Ref. No. 2 Operator: Dan / MWH

Direct T.V. Signal Strength Readings

Tsp No	Signal Strength Readings										Avg
16	87	86	86	87	87	87	87	86	87	87	86.7
18	86	86	86	86	85	85	86	86	85	85	85.6
20	88	87	87	87	87	87	88	88	89	90	88.8

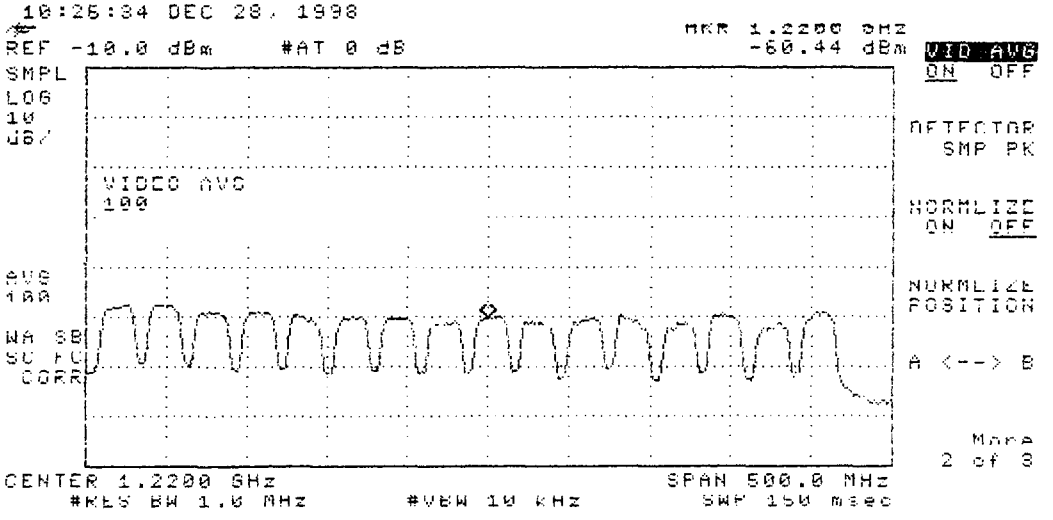
Estar T.V. Signal Strength Readings

Tsp No	Signal Strength Readings										Avg
16	90	90	90	90	90	91	91	90	90	91	90.3
18	90	90	90	90	91	91	90	92	89	90	90.1
20	93	91	91	92	92	93	93	92	93	93	92.3

Notes: Clear Sky 60°

1. Site-11, 12/28/98, Set-1, DTV
2. Boom Down
3. HP 8591E

Plot-11-D

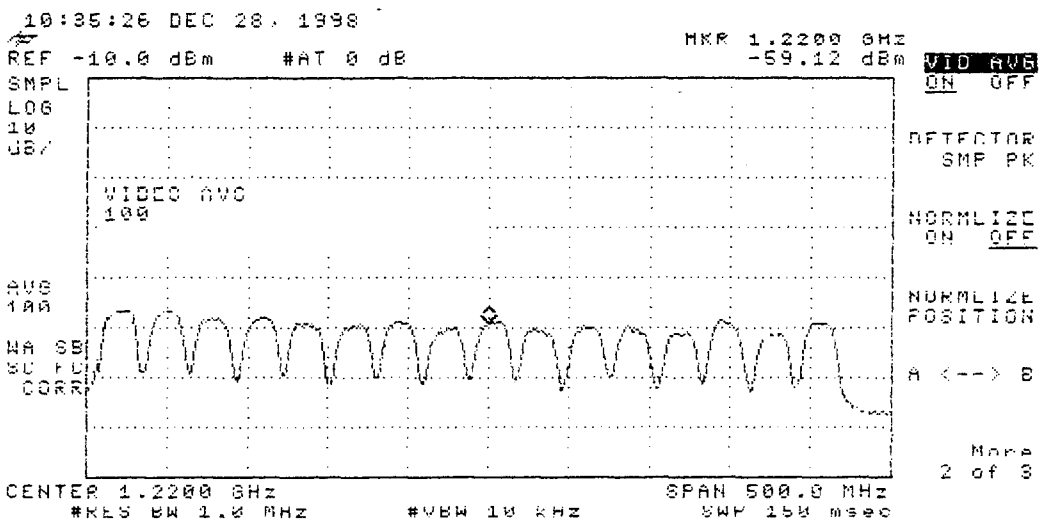


1. Site-11, Set-1, 12/28/98, Estar

2. Boom Down

3. HP 8591E

Plot-11-E

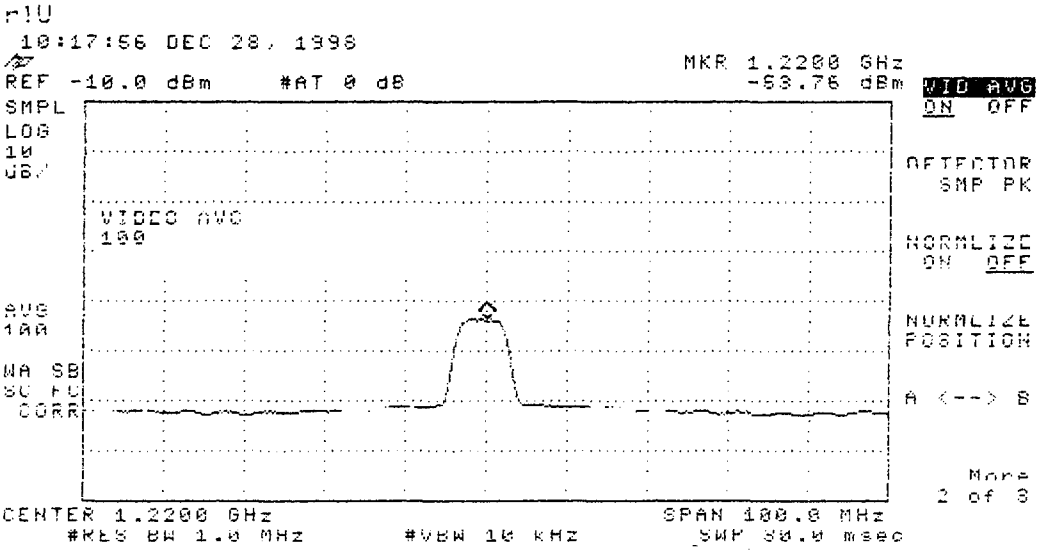


1. Site-11, Set-1, 12/28/98, N.P. Tx

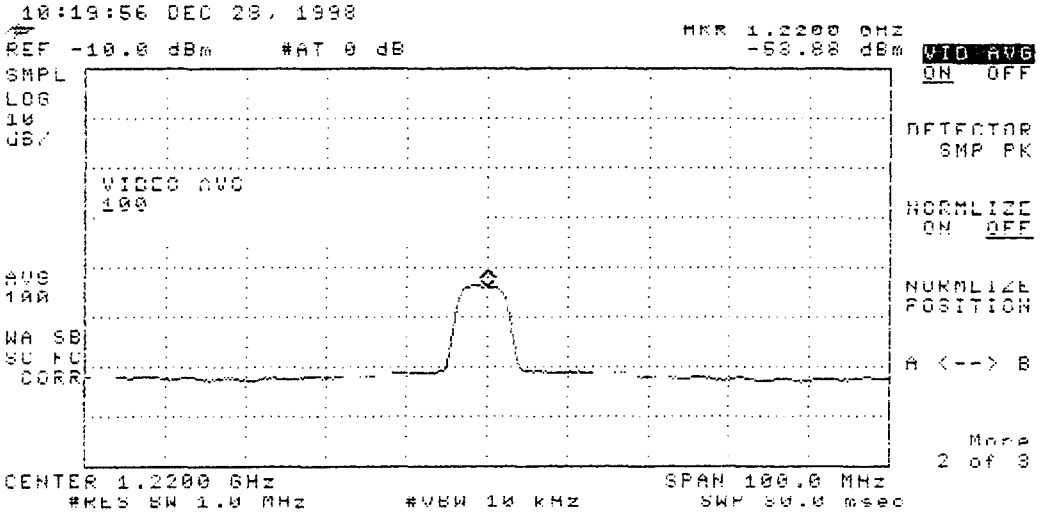
2. Picture Good on T.V.

3. Boom Down, HP8591E

Plot-11-N



1, 12/28/98, Site-11, N.P. Tx
2, Picture Good on T.V.
3, Boom Down, HP 8591E
4, Same as Plot 11-N, Extra



COMMENTS FROM SITE 11

Site 11 3rd and Jewell

a. NP pointing through one big Oak tree

Northpoint Technology – DBS Compatiblilty Test – Austin Test Area

Rx Site Data Log 3rd @ Christopher Columbus

Rx Site No. 12 p1

Set: 1 /

Re: Rx Condx Ref. No. 2 Date / Time: 12/28/98 11:30 CST

Re: Tx Condx Ref. No. 2 Operator: MWH

Data Measurements:

(1) On arrival -- - Position and deploy antenna platform (first at ground level).
- Position GPS Receiver and allow to average during site occupation.
- Obtain information for Rx Site Location Log.
- Point Precision Horn Antenna toward Tx (approx. direction).

(2) DBS Signal Interference Tests – DirecTV and EchoStar.

For each satellite case (one at a time), with Tx OFF, point DBS Antenna to the satellite and peak the signal strength. Observe the monitor for the prescribed TV channel (w/ appropriate DBS Rx) and assess signal quality. Turn Tx ON and observe the TV signal quality. Note any change in signal quality that is correlated with the Tx ON/OFF condition. Repeat Tx ON/OFF sequence as needed.

With the Spectrum Analyzer (SA), observe and record the Signal Power Spectrum and its peak value at the LNB output for the two Tx states (ON/OFF). Label the Spectrum Plots and mark them with an assigned ID code.

DirecTV – Tx OFF: OK? Y___ / N ___ Tx ON: OK? Y X / N___

Any behavior correlated with Tx ON/OFF ? Y___/ N___

Comments: _____.

Signal Power Spectrum – Tx ON: --Peak --63.25dBm Plot ID Code 12-D.
Tx OFF: – Peak -- _____dBm Plot ID Code _____.
Comments: _____.

EchoStar – Tx OFF: OK? Y___ / N ___ Tx ON: OK? Y X / N___

Any behavior correlated with Tx ON/OFF ? Y___/ N___

Comments: _____.

Signal Power Spectrum – Tx ON: --Peak -- -59.99dBm Plot ID Code 12-E.
Tx OFF: – Peak -- _____dBm Plot ID Code _____.
Comments: _____.

Rx Site Data Log

Rx Site No. 12 p2
Set: 1 1

(3) Northpoint Signal Quality Test –

With the Tx ON, point the DBS antenna toward the Tx , while using the NP Rx equipment, and peak the signal strength. Observe the monitor (w/ NP Rx equipment) and assess the signal quality.

NP Signal – OK? Y X / N___ Comments: _____.

(4) NP Rx Signal Level and Power Spectrum at Rx Site – LNB output --

With the DBS antenna on the NP Tx, and with the Tx ON, observe and record the Signal Power Spectrum and the peak level at the LNB output. Label the spectrum plot with an assigned ID Code.

Signal Power Spectrum -- Peak -- -58.29 dBm Plot ID Code -- 12-N.

Comments: _____.

(5) Tx Signal Level and Power Spectrum at Rx Site – w/ Precision Ant. and SA.

Using the Precision Antenna and Test Set, observe and record the Tx Signal Power Spectrum and the peak value at the Rx site. Label the spectrum plot with an assigned ID Code.

Signal Power Spectrum -- Peak -- _____ dBm Plot ID Code -- _____.

Comments: _____.

(6) When Rx Site measurements and tests are completed, read the GPS Receiver and record the position in the Rx Site Location Log. Prepare the equipment for movement to the next site.

Use the space below for added comments and notes. Attach extra pages if necessary.

Northpoint Technology – DBS Compatibility Test – Austin Test Area
Signal Strength Readings

Rx Site Data Log **Rx Site No.** 12

Set 1-1

Re: Condx Ref. No. 2 Date / Time 12/28/98 __:__ CST

Re: Condx Ref. No. 2 Operator: MWH / [illegible]

Direct T.V. Signal Strength Readings

Tsp No	Signal Strength Readings										Avg
16	56/69	54/70	54/70	57/71	57/69	54/67	54/70	57/69	57/70	57/71	54.8/69.6
18	51/66	50/65	50/66	49/66	49/66	49/65	51/66	51/65	50/66	52/65	50.2/65.6
20	54/71	53/70	53/72	54/71	52/69	55/71	55/67	54/71	54/69	54/69	54/70

inDoor

Estar T.V. Signal Strength Readings

Tsp No	Signal Strength Readings										Avg
16	84	84	84	84	84	83	84	84	83	83	83.7
18	84	84	84	83	83	83	84	83	83	84	83.5
20	86	86	87	86	86	87	86	86	86	86	86.2

Notes: 1. DTV is looking Right through trees & leaves, also Estar.

2. lower # is with Dr. Ward in Boom, Top is without Him.

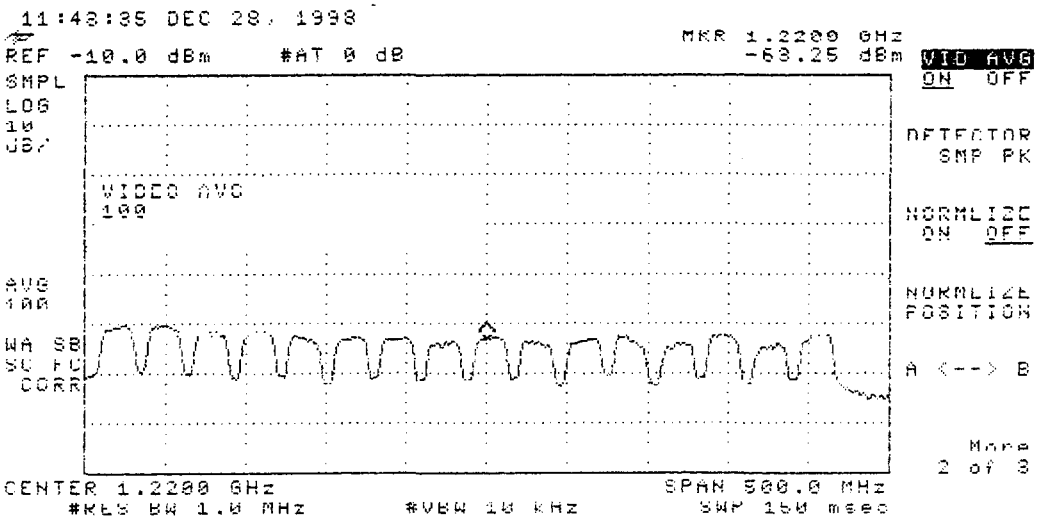
3. Clear sky, 70°

1. DTV, Site-12, 12/28/98, Set-1

2. Boom up 7'6"

3. HP 8591E

Plot 12-D

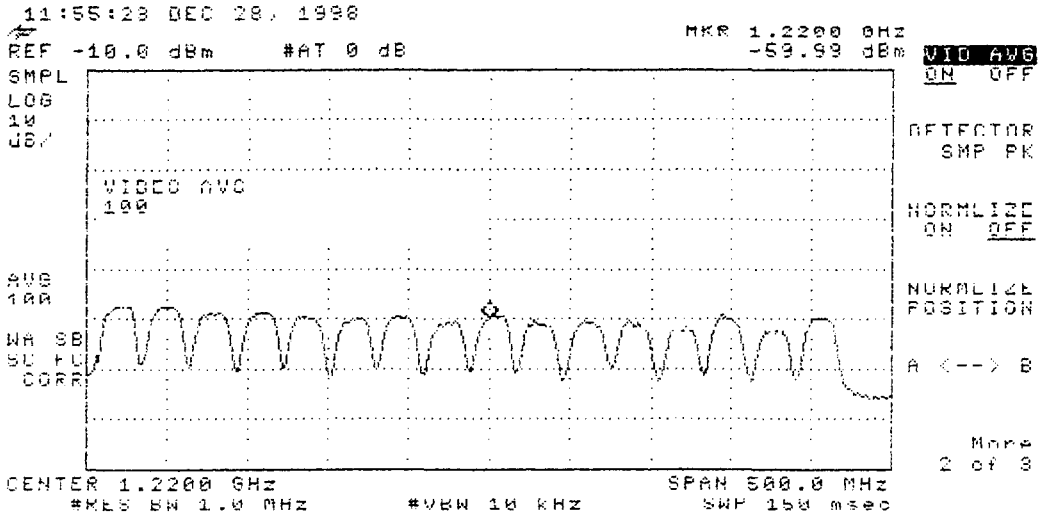


1. Site-12, 12/28/98, Set-1, Estar

2. Boom 7'6"

3. HP8591E

Plot 12-E

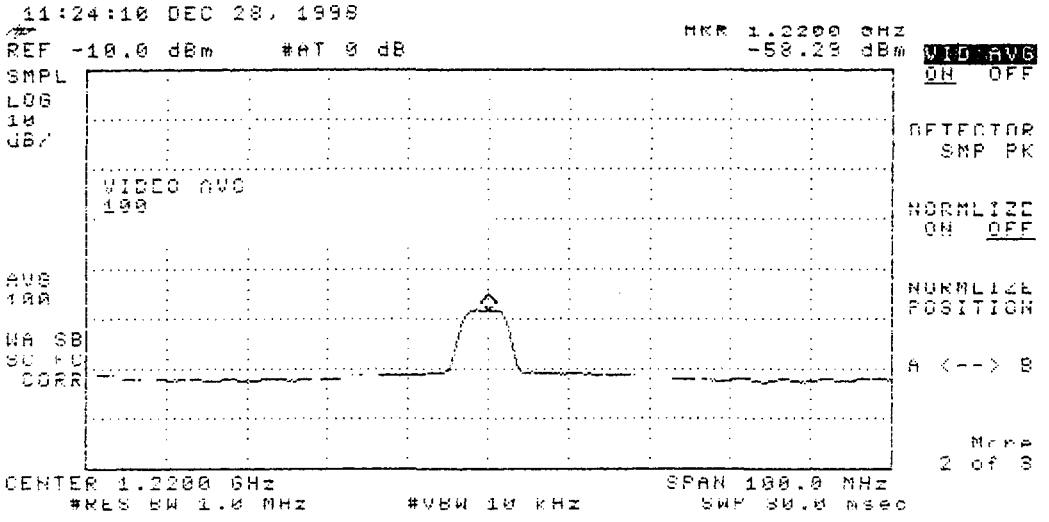


1. Site-12, 12/28/98, Set-1 N.P. Tx

2. Boom up. 7', 6"

3. Picture Good on T.V.

Plot-12-N



NP Tx blocked by tree -

COMMENTS FROM SITE 12

Site 12 3rd and Christopher

a. DTV and Estar is looking right through trees and leaves
b. Lower number is with Dr. Word in boom and top is without

Northpoint Technology – DBS Compatiblilty Test – Austin Test Area

Rx Site Data Log Barton Creek Mall Rx Site No. 13 p1

Set: 1 1

Re: Rx Condx Ref. No. 2 Date / Time: 12/28/98 12:45 CST

Re: Tx Condx Ref. No. 2 Operator: MWH

Data Measurements:

(1) On arrival -- - Position and deploy antenna platform (first at ground level).
- Position GPS Receiver and allow to average during site occupation.
- Obtain information for Rx Site Location Log.
- Point Precision Horn Antenna toward Tx (approx. direction).

(2) DBS Signal Interference Tests – DirecTV and EchoStar.

For each satellite case (one at a time), with Tx OFF, point DBS Antenna to the satellite and peak the signal strength. Observe the monitor for the prescribed TV channel (w/ appropriate DBS Rx) and assess signal quality. Turn Tx ON and observe the TV signal quality. Note any change in signal quality that is correlated with the Tx ON/OFF condition. Repeat Tx ON/OFF sequence as needed.

With the Spectrum Analyzer (SA), observe and record the Signal Power Spectrum and its peak value at the LNB output for the two Tx states (ON/OFF). Label the Spectrum Plots and mark them with an assigned ID code.

DirecTV – Tx OFF: OK? Y___ / N ___ Tx ON: OK? Y X / N___

Any behavior correlated with Tx ON/OFF ? Y___ / N___

Comments: _____.

Signal Power Spectrum – Tx ON: --Peak -- -61.58 dBm Plot ID Code 13-D.
Tx OFF: – Peak -- _____dBm Plot ID Code _____.
Comments: _____.

EchoStar – Tx OFF: OK? Y___ / N ___ Tx ON: OK? Y X / N___

Any behavior correlated with Tx ON/OFF ? Y___ / N___

Comments: _____.

Signal Power Spectrum – Tx ON: --Peak -- -59.37dBm Plot ID Code 13-E.
Tx OFF: – Peak -- _____dBm Plot ID Code _____.
Comments: _____.

Rx Site Data Log

Rx Site No. 13 p2
Set: 1 1

(3) Northpoint Signal Quality Test –

With the Tx ON, point the DBS antenna toward the Tx , while using the NP Rx equipment, and peak the signal strength. Observe the monitor (w/ NP Rx equipment) and assess the signal quality.

NP Signal – OK? Y X / N___ Comments: Steep Slopes on Spectrum (mE)

(4) NP Rx Signal Level and Power Spectrum at Rx Site – LNB output --

With the DBS antenna on the NP Tx, and with the Tx ON, observe and record the Signal Power Spectrum and the peak level at the LNB output. Label the spectrum plot with an assigned ID Code.

Signal Power Spectrum -- Peak -- -63.42 dBm Plot ID Code -- 13-N.

Comments: _____.

(5) Tx Signal Level and Power Spectrum at Rx Site – w/ Precision Ant. and SA.

Using the Precision Antenna and Test Set, observe and record the Tx Signal Power Spectrum and the peak value at the Rx site. Label the spectrum plot with an assigned ID Code.

Signal Power Spectrum -- Peak -- _____ dBm Plot ID Code -- _____.

Comments: _____.

(6) When Rx Site measurements and tests are completed, read the GPS Receiver and record the position in the Rx Site Location Log. Prepare the equipment for movement to the next site.

Use the space below for added comments and notes. Attach extra pages if necessary.